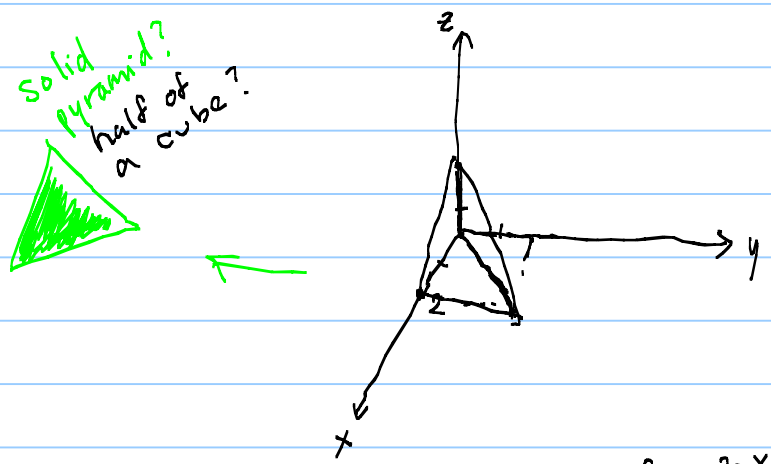
a.

$$\int_0^2 \int_0^x \int_0^{2-x} xyz \, dz\,dy\,dx.$$

$y = x$	$y = x$
$0 = 0$	$2 = 2$
@ $x = 0$	@ $x = 2$
$(0,0,0)$	$(2,2,0)$
x, y, z	x, y, z

$z = 2 - x$	$z = 2 - x$
$z = 2 - 2$	$2 - 0$
$z = 0$	$z = 2$
@ $x = 2$	@ $x = 0$
$(2,0,0)$	$(0,0,2)$
x, y, z	x, y, z

solid pyramid? half of a cube?



b. rewrite: $dy\,dx\,dz \rightarrow$ (integral in this order)

$$\int_0^2 \int_0^{2-x} \int_0^x xyz \, dy\,dx\,dz$$

NOT SURE?

(3) integrate the integral

original:

$$\int_0^2 \int_0^x \int_0^{2-x} xyz \, dz\,dy\,dx.$$

$$= \int_0^2 \int_0^x xy \frac{z^2}{2} \Big|_0^{2-x} dy\,dx$$

$$= \int_0^2 \int_0^x xy \frac{2-x^2}{2} \, dy\,dx$$

$$\int_0^2 x \cdot \frac{y^2}{2} \cdot \frac{2-x^2}{2} \Big|_0^x dx$$

$$\int_0^2 x \cdot \frac{x^2}{2} \cdot \frac{2-x^2}{2} \, dx$$

$$\frac{x^3}{2} \cdot \frac{-(x^2-2)}{2}$$

$$= \frac{-x^3(x^2-2)}{4} \Big|_0^2$$

$$= \frac{-(2)^3((2)^2-2)}{4} = -4$$???